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भारतीय मानक

V-पट्टे — औद्योगिक प्रयोजन के लिए निरन्त V-पट्टे

भाग 1 सामान्य प्रयोजन — विशिष्टि

(दूसरा पुनरीक्षण)

Indian Standard

V-BELTS — ENDLESS V-BELTS FOR INDUSTRIAL PURPOSES

PART 1 GENERAL PURPOSE — SPECIFICATION

(Second Revision)

First Reprint NOVEMBER 2000

UDC 621.852.42

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

April 1994 **Price Group 9**

Pulleys and Belts Sectional Committee, LM 09

FOREWORD

This Indian Standard (Part 1) (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Pulleys and Belts Sectional Committee had been approved by the Light Mechanical Engineering Division Council.

This standard was originally published in 1964 and was subsequently revised in 1974.

The standard has been suitably restructured and following important changes have been made:

a) The clause on material elaborated.
b) Section 'Z' has been included.
c) The table on belt lengths and tolerances modified.
d) The belt power rating values revised.
e) Section checking and angle checking of V-belts using gauges, excluded from this standard as this method not widely being practised now. However, the riding position of the belt with respect to standard measuring pulleys, while measuring the belt length ensure that correct section dimensions are maintained.

The pitch lengths of belts commonly used in the industry are given in Table 3B. However, at International level, belts of different pitch length given in Table 4 are used. It is, therefore, recommended that Indian industry should adopt standard length given in Table 3A.

Recommendation for storage of belts is given in Annex D. Part 2 of this standard covers the requirement of fire resistant and anti-static V-belts.

In preparation of this standard, assistance has been derived from the following standards:

ISO 4184 : 1992 'Belt drives — Classical and narrow V-belts — Lengths in datum system', issued by International Organization for Standardization (ISO).

BS 3790 : 1981 'Endless wedge belt drives and endless V-belt drives', issued by British Standards Institution (BSI).

DIN 2215 : 1975 'Endless V-belts — Dimensions', issued by the Deutsches Institut für Normung (DIN).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

AMENDMENT NO. 1 APRIL 2005
TO
IS 2494 (PART 1) : 1994 V- BELTS — ENDLESS V-BELTS FOR INDUSTRIAL PURPOSES

PART 1 GENERAL PURPOSE — SPECIFICATION

(Second Revision)

(*Page* 2, *clause* **5**) — Substitute the following for the existing:

'5 CROSS SECTION DIMENSIONS

The nominal cross section dimensions and the nominal included angle of belts shall be as given in Table 1. The dimensions of belts as given in Table 1 are for guidance only but the belts shall fit pulley grooves within limits given in Table 2B when mounted on two measuring pulleys made in accordance with Table 2A.'

[*Page* 7, *clause* **11.1**(c)] — Substitute the following for the existing:

'Length Code, if required by the purchaser (*see* **7.2.2**); otherwise some indication about the matching belts; and'

(MGP 29)

Reprography Unit, BIS, New Delhi, India

Indian Standard
V-BELTS — ENDLESS V-BELTS FOR INDUSTRIAL PURPOSES
PART 1 GENERAL PURPOSE — SPECIFICATION
(Second Revision)

1 SCOPE

This standard (Part 1) covers the dimensions and other requirements of endless V-belts for power transmission in general industrial applications.

1.1 This standard also covers recommendations for transmission capacities and selection procedure for the belts.

1.2 The V-belts conforming to this specification are recommended for operating at ambient temperature between + 60°C and − 18°C.

2 REFERENCES

IS 7923 : 1985 'Glossary of terms and definitions relating to drives using V-belts and grooved pulleys (*first revision*)' is a necessary adjunct to this standard.

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply (*see* IS 7923 : 1985).

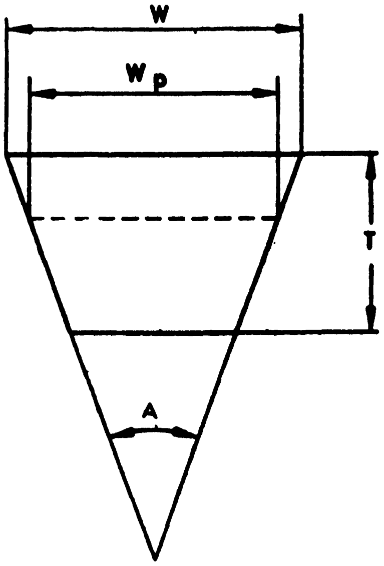
3.1 V-Belt

A belt, the cross-section of which is shaped roughly like a trapezium. The latter is usually isosceles. On the cross section the trapezium is outlined by the base, sides and top of the belt.

3.2 Angle of V-Belt (*A*)

The included angle obtained by extending the sides of the belt (*see* Fig. in Table 1).

Table 1 Belt Cross Section Dimensions



Cross Section Symbol	Pitch Width W_p mm	Nominal Top Width W mm	Nominal Height T mm	Nominal Included Angle A degrees
Z	8.5	10.0	6.0	40
A	11.0	13.0	8.0	40
B	14.0	17.0	11.0	40
C	19.0	22.0	14.0	40
D	27.0	32.0	19.0	40
E	32.0	38.0	23.0	40

3.3 Nominal Height of a V-Belt (T)

Height of the trapezium outlined on a cross section (*see* Fig. in Table 1).

3.4 Nominal Top Width of a V-Belt (W)

Top width of the trapezium outlined on a cross section (*see* Fig. in Table 1).

3.5 Pitch Width of a V-Belt (W_p)

The width of the belt at its pitch zone. The width remains unchanged when the belt is bent perpendicularly to its base. This is a basic dimension of standardization for the belt and for the corresponding pulley groove, considered as a whole.

3.6 Pitch Length of a Belt (L_p)

The length of the pitch line of a belt. This is the circumferential length of the belt at the pitch width, determined by the method specified in 7.1.1.

3.7 Pulley Groove Pitch Width (W_p)

That width of the pulley groove which has the same dimensions as the pitch width of the belt used with the pulley.

3.8 Pulley Pitch Diameter (d_p)

The diameter of the pulley measured at the groove pitch width.

4 MATERIAL AND WORKMANSHIP

4.1 V-Belts shall consist of a suitable combination of elastomeric compound(s) with polyester cord or polyester fabric reinforcement and outside fabric of cotton or synthetic or synthetic blended fabric, coated with polychloroprene or any other suitable compound, the whole being moulded together in a uniform manner and shaped in accordance with the best manufacturing practice. The V-belts should be free from any manufacturing defects like lumps, bare spots, sponginess, loose fabric joints and any surface blemishes.

4.2 The reinforcing polyester cord/fabric of the V-belts shall be tested by using suitable qualitative tests. Frequency of such test shall be as agreed between the purchaser and the manufacturer.

4.3 The outside jacket of the V-belt shall be checked for the presence of polychloroprene rubber by using suitable qualitative tests followed where necessary by infrared spectraphotometry. Frequency of such tests shall be as agreed between the purchaser and the manufacturer.

5 CROSS SECTION DIMENSIONS

The nominal cross section dimensions and the nominal included angle of belts shall be as given in Table 1. The dimensions of belts made by individual manufacturers may vary slightly from the nominal values given in Table 1, but the belts shall fit pulley grooves within limits given in Table 2A when mounted on two measuring pulleys made in accordance with Table 2B.

6 DESIGNATION

The V-belts conforming to this standard shall be designated by the number of this standard, the cross section symbol and nominal pitch length alongwith symbol L_p. However, belt reference No. corresponding to nominal pitch length given in Table 3B column 1 can also be incorporated.

Example

A V-belt of cross section 'C' and of nominal pitch length of 3 104 mm shall be designated as:

V-belt IS 2494 (Part 1) C 3104 L_p

or

V-belt IS 2494 (Part 1) C 3104 L_p/C 120

7 BELT PITCH LENGTH AND TOLERANCES

7.1 Belt Pitch Length

Standard pitch lengths of V-belts of cross-section *Z*, *A*, *B*, *C*, *D* and *E* are given in Table 3A and Table 3B.

Belts with lengths other than given in Table 3A and Table 3B may be supplied if agreed to between the purchaser and the supplier. For such belts, the nominal pitch lengths shall be declared by the manufacturer.

NOTE — It is recommended that belts with lengths not given in Tables 3A and 3B may be used for replacement purposes only. It is further recommended that standard belts with lengths given in Table 3A should invariably be used for new installations and wherever possible for existing installations as well.

7.1.1 *Measurement of V-Belt Pitch Length*

The V-belt is placed over two identical V-grooved pulleys, the pulley V-groove being defined (*see* Fig. in Table 2A) and its dimensions in Table 2A. The pulleys shall be mounted on parallel horizontal axis on a test-bench. Apply to the sliding pulley the measuring force indicated in Table 2B. Rotate the pulleys in order that the belt makes at least three revolutions ensuring proper seating of the belt in the pulley grooves and the total measuring force shall be equally divided between the two strands of the belt. Measure the maximum and minimum centre distance between the two pulleys.

The pitch length is determined by the following equation:

$$L_p = 2E + C_p$$

$$E = \frac{C_{Max} + C_{Min}}{2}$$

where

L_p = Pitch length of a V-belt (mm);

E = Mean centre distance (mm);

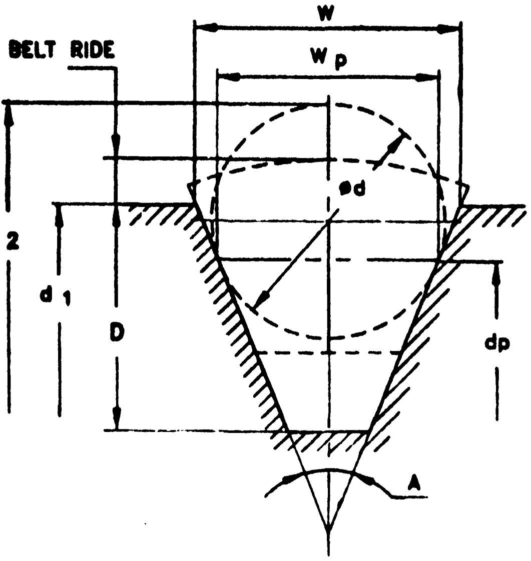
C_p = Pitch circumference of the V-belt length measuring pulley (mm) (*see* Table 2A, col 4);

C_{Max} = Maximum centre distance between the pulleys (mm); and

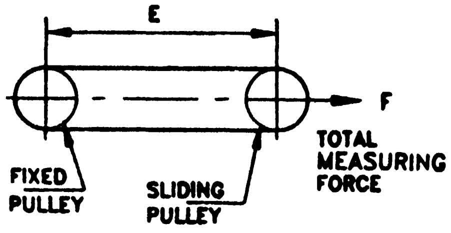
C_{Min} = Minimum centre distance between the pulleys (mm).

Table 2A Dimensions of Pulleys for Measuring New V-Belts

(*Clauses* 5 *and* 7.1.1)



MEASURING PULLEY DIMENSIONS



BELT PITCH LENGTH MEASUREMENT

Groove Cross Section Symbol	Outside Diameter	Pitch Diameter	Pulley Circumference at Pitch Diameter	Pitch Width of Groove	Top Width of Groove	Groove Angle	Minimum Groove Depth	Ball or Rod Diameter	Diameter Over Ball or Rods
	d_1	d_p	C_p	W_p	W	A	D	d	d_2
	mm	mm	mm	mm	mm	degree	mm	mm	mm
	± 0.05	± 0.05				± 0.15		± 0.013	± 0.05
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Z	62.30	57.30	180	8.5	10.02	34	10.0	9.0	69.308
A	102.10	95.50	300	11.0	13.01	34	12.0	11.6	110.822
B	135.72	127.32	400	14.0	16.56	34	15.0	14.7	146.533
C	234.22	222.82	700	19.0	22.48	34	20.0	20.0	249.098
D	398.18	381.98	1 200	27.0	32.26	36	28.0	28.5	419.622
E	592.16	572.96	1 800	32.0	38.24	36	33.0	33.8	617.649

Table 2B Tolerance and Measuring Force Requirements When Measuring New V-Belts on Pulleys as Specified in Table 2A

(*Clauses* 5 *and* 7.1.1)

Belt Cross Section Symbol	Total Measuring Force, *F*	Belt Ride Position of Top Surface of Belt with Respect to Top of Pulley Groove
	N	mm
Z	110	± 1.6
A	200	± 1.6
B	300	± 1.6
C	750	± 1.6 2.0
D	1 400	± 1.6 3.2
E	1 800	± 1.6 3.2

Table 3A Nominal Pitch Lengths for Standard Sizes of V-Belts

(*Clause* 7.1)

All dimensions in millimetres.

Pitch Lengths					
Cross Section *Z*	Cross Section *A*	Cross Section *B*	Cross Section *C*	Cross Section *D*	Cross Section *E*
(1)	(2)	(3)	(4)	(5)	(6)
405	630	930	1 560	2 740	4 660
475	700	1 000	1 760	3 130	5 040
530	790	1 100	1 950	3 330	5 420
625	890	1 210	2 190	3 730	6 100
700	990	1 370	2 420	4 080	6 850
780	1 100	1 560	2 720	4 620	7 650
920	1 250	1 690	2 880	5 400	9 150
1 080	1 430	1 760	3 080	6 100	1 2230
1 330	1 550	1 950	3 310	6 840	1 3750
1 420	1 640	2 180	3 520	7 620	1 5280
1 540	1 750	2 300	4 060	8 410	1 6800
	1 940	2 500	4 600	9 140	
	2 050	2 700	5 380	10 700	
	2 200	2 870	6 100	12 200	
	2 300	3 200	6 820	13 700	
	2 480	3 600	7 600	15 200	
	2 570	4 060	9 100		
	2 700	4 430	10 700		
	2 910	4 820			
	3 080	5 370			
	3 290	6 070			
	3 540				

Table 3B Nominal Pitch Lengths for Standard Sizes of V-Belts

(*Clause* 7.1)

All dimensions in millimetres.

Belt Reference No.	Nominal Pitch Lengths					
	Cross Section *Z*	Cross Section *A*	Cross Section *B*	Cross Section *C*	Cross Section *D*	Cross Section *E*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
15	403					
17	454					
20	530					
24	632	646				
26	682	696				
28	733	747				
30	784	798				
31	809	823				
32	835	849				
35	911	925	932			
36	936	950	957			
37	962	976	983			
38	987	1 001	1 008			
39	1 013	1 027	1 034			
40	1 038	1 052	1 059			
42	1 089	1 103	1 110			
43		1 128	1 135			
46		1 204	1 211			
47		1 230	1 237			

Table 3B *(Concluded)*

Belt Reference No.	Nominal Pitch Lengths					
	Cross Section *Z*	Cross Section *A*	Cross Section *B*	Cross Section *C*	Cross Section *D*	Cross Section *E*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
48		1 255	1 262	1 275		
51		1 331	1 338	1 351		
54		1 408	1 415	1 428		
55		1 433	1 440	1 453		
56		1 458	1 465	1 478		
58		1 509	1 516	1 529		
60		1 560	1 567	1 580		
61		1 585	1 592	1 605		
63		1 636	1 643	1 656		
64		1 662	1 669	1 682		
65		1 687	1 694	1 707		
68		1 763	1 770	1 783		
70		1 814	1 821	1 834		
75		1 941	1 948	1 961		
77		1 992	1 999	2 012		
78		2 017	2 024	2 037		
80		2 068	2 075	2 088		
81		2 093	2 100	2 113		
85		2 195	2 202	2 215		
90		2 322	2 329	2 342		
96		2 474	2 481	2 494		
97		2 500	2 507	2 520		
100		2 576	2 583	2 596		
105		2 703	2 710	2 723		
112		2 881	2 888	2 901		
120		3 084	3 091	3 104	3 127	
122		3 135	3 142	3 155	3 178	
124		3 186	3 193	3 206	3 229	
128		3 287	3 294	3 307	3 330	
133		3 414	3 421	3 434	3 457	
134		3 440	3 447	3 460	3 483	
144		3 694	3 701	3 714	3 737	
155			3 980	3 993	4 016	
158			4 056	4 069	4 092	
162			4 158	4 171	4 194	
173			4 437	4 450	4 473	
180			4 615	4 628	4 651	
195			4 996	5 009	5 032	
210			5 377	5 390	5 413	5 426
238			6 088	6 101	6 124	6 137
260				6 660	6 683	6 696
268				6 863	6 886	6 899
298				7 625	7 648	7 661
328				8 387	8 410	8 423
358				9 149	9 172	9 185
388					9 934	9 947
390					9 985	9 998
418					10 696	10 709
478					12 220	12 233
538					13 744	13 757
598					15 268	15 281

7.1.2 *Tolerances on Pitch Length*

The V-belt pitch length when measured according to 7.1.1 shall be within the permissible deviation as specified in Table 4.

7.2 Matched Belts

7.2.1 The belts running on a multi-belt drive shall be matched belts, in order to avoid uneven distribution of load. The variation in length within a matched set shall not exceed the values given in Table 5.

7.2.2 The following system of coding is recommended:

The belts should be stamped with length code No. 50 if the measured pitch length is equal to the nominal pitch length. A deviation of 2.5 mm in length from the nominal pitch lengths is to be represented by one unit and the length code number will increase or decrease, as the length is more or less.

Example:

> A belt designation of IS 2494 (Part 1) C 3 104 L_p having an actual pitch length of 3 104 mm should be coded 50. If the actual pitch length is 3 101.5 mm, it should be coded 49. If the actual pitch length is 3 109 mm it should be coded 52.

Table 4 Manufacturing Tolerances of V-Belts

(*Clause* 7.1.2)

Nominal Pitch Length L_p (mm)	Permissible Deviation (mm)	
Over 400 to 500 including	+ 10	- 6
Over 500 to 630 including	+ 12	- 6
Over 630 to 800 including	+ 12	- 8
Over 800 to 1 000 including	+ 14	- 8
Over 1 000 to 1 250 including	+ 14	- 10
Over 1 250 to 1 600 including	+ 16	- 10
Over 1 600 to 2 000 including	+ 18	- 12
Over 2 000 to 2 500 including	+ 30	- 16
Over 2 500 to 3 150 including	+ 34	- 18
Over 3 150 to 4 000 including	+ 38	- 20
Over 4 000 to 5 000 including	+ 46	- 24
Over 5 000 to 6 300 including	+ 50	- 28
Over 6 300 to 8 000 including	+ 56	- 32
Over 8 000 to 10 000 including	+ 66	- 38
Over 10 000 to 12 500 including	+ 74	- 44
Over 12 500 to 16 000 including	+ 90	- 50
Over 16 000	+ 106	- 60

Table 5 Belt Matching Tolerances

(*Clause* 7.2.1)

Nominal Pitch Length L_p	Maximum Difference Between the Lengths of Belts of the Same Set	Allowable Consecutive Code Number
1 250 or less	2.5	One length code number
Over 1 250 to 2 000 including	5.0	Two length code number
Over 2 000 to 3 150 including	7.5	Three length code number
Over 3 150 to 5 000 including	10.0	Four length code number
Over 5 000 to 8 000 including	12.5	Five length code number
Over 8 000 to 12 500 including	15.0	Six length code number
Over 12 500	17.5	Seven length code number

NOTES

1 Age and storage conditions may alter the belt length (*see* Annex D).

2 It is recommended that belts from different manufacturers should not be mixed on the same drive.

8 TRANSMITTING CAPACITIES

8.1 For information of the users recommendations for power application of V-belts have been given in Annex A. The transmitting capacities of the belts are also given in Annex A for the guidance of designers and for arriving at number of V-belts to be used in a particular drive.

9 SAMPLING

Unless otherwise agreed to between the purchaser and the manufacturer, the sampling plan and criterion for conformity given in Annex B shall be followed.

10 TESTS

10.1 Tensile Test

Tensile test when carried out in accordance with the method of test given in Annex C shall meet the following requirements:

Type	*Z*	*A*	*B*	*C*
Tensile strength, N, *Min*	2 100	2 940	4 170	7 850
Elongation, percent, *Max*	15	15	15	15

10.1.1 For *D* and *E* section belts, the procedure given in Annex C shall be followed except that double the number of samples are to be prepared, and when tensile loads specified below against respective section are applied, the corresponding elongation shall be as follows:

Type	*D*		*E*	
Sample No.	(1)	(2)	(1)	(2)
Tensile load, N	3 000	4 500	4 000	6 000
Elongation percent, *Max*	3.5	5.0	3.5	5.0

NOTE — Tensile test shall be a type test only and it shall be carried out for each section and not for every size.

11 MARKING

11.1 All belts shall be marked legibly and durably on the outer non-working face indicating the following items:

a) Manufacturer's name and trade-mark, if any;
b) Belt designation (*see* 6);
c) Length code (*see* 7.2.2); and
d) The month and year of manufacture.

11.2 BIS Certification Marking

Details available with Bureau of Indian Standards.

12 PACKING

The belts shall be suitably packed as mutually agreed to between the purchaser and the supplier.

ANNEX A

(*Clause* 8.1)

RECOMMENDATIONS FOR POWER APPLICATION OF V-BELTS

A-1 POWER TRANSMITTED

A-1.1 The power which a V-belt is capable of transmitting without being over stressed varies with the type of service, the operational hours per day, the length of the belt and the arc of contact on the smaller pulley.

The correction factors that are taken into account for these influences are given in Tables 6 to 8 and should be applied to the ratings given in Tables 9 to 14 to find out the power which can be transmitted by a V-belt.

A-1.2 Design Power

The design power is the prime mover power in kW multiplied by the service factor given in Table 6 for the appropriate type of service, taking into account the operational hours per day.

$$\text{Design power in kW} = P \times F_a$$

where

P = drive power in kW, and

F_a = correction factor according to service (from Table 6).

A-2 SELECTION OF SECTION

A-2.1 Selection of the most favourable V-belt section can be facilitated by the use of Fig. 1. In borderline cases, alternative design calculations may be necessary to determine the best solution of a drive problem.

NOTE — Z-Section belts should be used for low power, small pulley diameter applications and should be selected only when pulley diameters are smaller than the recommended minimum for A-Section belts.

A-3 NUMBER OF BELTS

A-3.1 The number of belts required for a particular drive may be calculated from the following formula:

$$\text{Number of belts} = \frac{P \times F_a}{P_r \times F_c \times F_d}$$

where

P = drive power in kW,

F_a = correction factor according to service (from Table 6),

P_r = power rating of single V-belt (from Tables 9 to 14),

F_c = correction factor for length (from Table 7), and

F_d = correction factor for arc of contact (from Table 8).

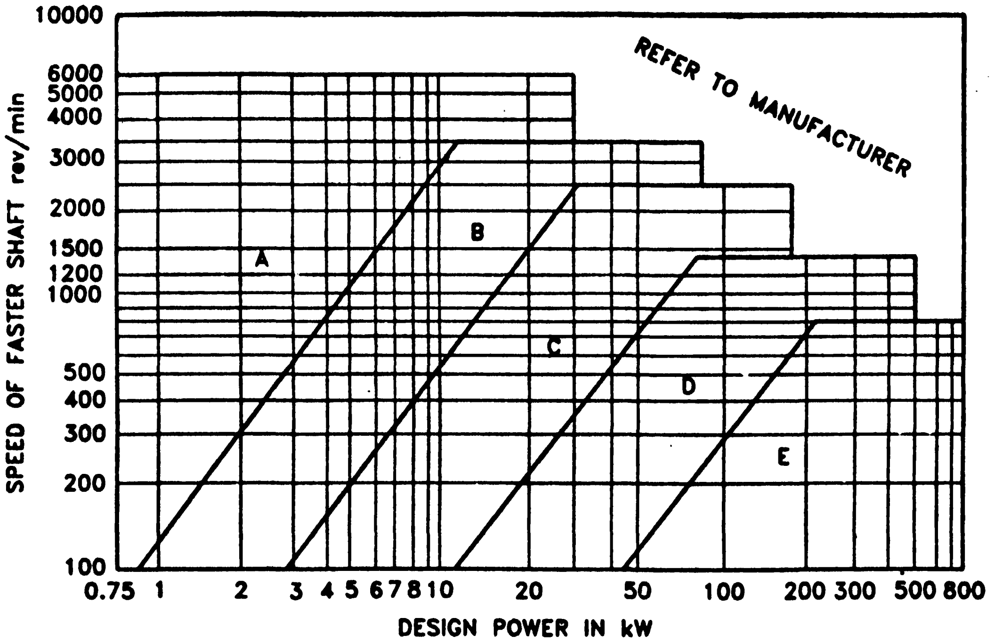


FIG. 1 SELECTION OF V-BELT CROSS SECTION

Table 6 Correction Factors According to Service, F_a

(*Clauses* A-1.1 *and* A-1.2)

Severity of Service	Type of Driven Machines	Type of Driving Units					
		AC Motors: Normal Torque, Squirrel Cage, Synchronous and Split Phase. DC Motors: Shunt Wound. Multiple Cylinder Internal Combustion Engines Over 600 rev/min			AC Motors: High Torque, High Slip Repulsion-Induction, Single-Phase Series Wound and Slip Ring. DC Motors: Series Wound and Compound Wound. Single Cylinder Internal Combustion Engines. Multiple Cylinder Internal Combustion Engines Under 600 rev/min. Line Shafts, Clutches, Brakes, Direct on Line Starting		
		Operational hours per day			Operational hours per day		
		Up to 10 h	Over 10 to 16 h	Over 16 h and continuous service	Up to 10 h	Over 10 to 16 h	Over 16 h and continuous service
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Light duty	Agitators for liquids, blowers and exhausters, centrifugal pumps and compressors, fans up to 7.5 kW and light-duty conveyors	1.0	1.1	1.2	1.1	1.2	1.3
Medium duty	Belt conveyors for sand, grain, etc; dough mixers; fans over 7.5 kW; generators; line shafts; laundry machinery; machine tools; punches, presses and shears; printing machinery; positive displacement rotary pumps; and revolving and vibrating screens	1.1	1.2	1.3	1.2	1.3	1.4
Heavy duty	Brick machinery, bucket elevators, exciters, piston compressors, conveyors (drag-pan-screw), hammer mills, paper mill beaters, piston pumps, positive displacement blowers, pulverizers, saw mill and wood-working machinery, and textile machinery	1.2	1.3	1.4	1.4	1.5	1.6
Extra-heavy duty	Crushers (gyratory-jaw-roll), mill (ball-rod-tube), hoists, and rubber (calenders-extruders-mills)	1.3	1.4	1.5	1.5	1.6	1.8

NOTES

1 The table gives only a few examples of particularly representative machines.

2 If an idler pulley is used, the following values shall be added to the service factor:

Idler pulley on the slack side:

Inside	0
Outside	0.1

Idler pulley on the tight side:

Inside	0.1
Outside	0.2

Table 7 Correction Factors for Belt Pitch Length, F_c

(*Clauses* A-1.1 *and* A-3.1)

Correction Factor	Belt Pitch Length					
	Belt Cross Section Symbol					
	Z mm	*A* mm	*B* mm	*C* mm	*D* mm	*E* mm
0.80		630				
0.81			930			
0.82		700		1 560	2 740	
0.83			1 000			
0.84		790		1 760		
0.85			1 100			
0.86	405	890			3 130	
0.87			1 210	1 950	3 330	
0.88		990				
0.89						
0.90	475	1 100	1 370	2 190	3 730	4 660
0.91				2 340		
0.92	530		1 560	2 490	4 080	5 040
0.93		1 250				
0.94				2 720	4 620	5 420
0.95	625		1 760	2 800		
0.96		1 430		3 080		6 100
0.97			1 950		5 400	
0.98	700	1 550		3 310		
0.99		1 640	2 180	3 520		6 850
1.00	780	1 750	2 300		6 100	
1.02		1 940	2 500	4 060		7 650
1.03					6 840	
1.04	920	2 050	2 700			
1.05		2 200	2 850	4 600	7 620	9 150
1.06		2 300				
1.07	1 080				8 410	9 950
1.08		2 480	3 200	5 380		
1.09		2 570			9 140	10 710
1.10		2 700	3 600			
1.11				6 100		
1.12		2 910			10 700	12 230
1.13		3 080	4 060			
1.14		3 290		6 860		13 750
1.15			4 430			
1.16		3 540	4 820	7 600	12 200	
1.17			5 000		13 700	15 280
1.18			5 370			
1.19			6 070		15 200	16 800
1.20				9 100		
1.21				10 700		

Table 8 Correction Factors for Arc of Contact, F_d

(*Clauses* A-1.1, *and* A-3.1)

$\frac{D-d}{C}$	Arc of Contact on Smaller Pulley (in Degrees)	Correction Factor, i.e., Proportion of 180° Rating
(1)	(2)	(3)
0.00	180	1.00
0.05	177	0.99
0.10	174	0.99
0.15	171	0.98
0.20	169	0.97
0.25	166	0.97
0.30	163	0.96
0.35	160	0.95
0.40	157	0.94
0.45	154	0.93
0.50	151	0.93
0.55	148	0.92
0.60	145	0.91
0.65	142	0.90
0.70	139	0.89
0.75	136	0.88
0.80	133	0.87
0.85	130	0.86
0.90	127	0.85
0.95	123	0.83
1.00	120	0.82

A-4 ARC OF CONTACT

A-4.1 The arc of contact on the smaller pulley should be based on the effective arc as determined by the following formula:

$$\text{Arc of contact angle} = 2\cos^{-1}\frac{D-d}{2C}$$

where

D = pitch diameter of larger pulley,

d = pitch diameter of smaller pulley, and

C = centre distance of the drive.

A-5 PITCH LENGTH

A-5.1 The pitch lengths of belts corresponding to given pulley pitch diameter and centre distances may be obtained by the following formula:

$$L = 2C + 1.57(D+d) + \frac{(D-d)^2}{4C}$$

where

L = pitch length of the belt,

C = centre distance of the drive,

D = pitch diameter of larger pulley, and

d = pitch diameter of smaller pulley.

A-6 CENTRE DISTANCE

A-6.1 The centre distances may be calculated from the formula:

$$\text{Centre distance, } C = A + \sqrt{(A^2 - B)}$$

where

$$A = \frac{L}{4} - 0.392\,5\,(D+d),$$

$$B = \frac{(D-d^2)}{8}$$

L = pitch length of the belt,

D = pitch diameter of larger pulley, and

d = pitch diameter of smaller pulley.

A-7 TRANSMITTING CAPACITIES

A-7.1 The recommended power ratings of single belts are given in Tables 9 to 14. These ratings have been calculated for belts with 180° arc of contact and with a certain pitch length. V-belt manufacturers shall ensure that transmitting capacities that is ratings of single V-belts shall not be less than those given in Tables 9 to 14. In the case of multi-belt drives, these ratings are applicable only to belts that are matched for length in accordance with Table 5.

A-8 SPEED RATIO

A-8.1 Speed ratio of the drive is the ratio of rpm of the smaller pulley to the rpm of the larger pulley and can be determined by the following equation:

where

$$S = \frac{D}{d}$$

S = speed ratio,

D = pitch diameter of larger pulley, and

d = pitch diameter of smaller pulley.

Power rating of a V-belt is based on considering highest flexural stresses at the smaller pulley when the arc of contact is 180°. At large speed ratios, lower average fatigue stress levels will be obtained. This will increase belt life, alternatively permit higher power ratings. This additional power given in Tables 9 to 14 should be added to the basic power rating of the belt for design calculations.

Table 9 Power Ratings in Kilowatts (P_r) for Z-Section V-Belts, 10 mm Wide with 180° Arc of Contact on Smaller Pulley

(*Clauses* 8.1, A-1.1, A-3.1 *and* A-8.1)

Speed of Faster Shaft	Power Rating for Smaller Pulley Pitch Diameter of						Additional Power Increment per Belt, for Speed Ratio of									
	50 mm	56 mm	63 mm[1]	71 mm[1]	80 mm[1]	90 mm	1.0 to 1.02	1.03 to 1.04	1.05 to 1.08	1.09 to 1.12	1.13 to 1.18	1.19 to 1.24	1.25 to 1.34	1.35 to 1.50	1.51 to 1.99	2.00 and over
r/min	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
960	0.12	0.14	0.18	0.23	0.26	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02
1 440	0.16	0.19	0.25	0.30	0.35	0.36	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03
2 880	0.26	0.34	0.41	0.50	0.56	0.60	0.00	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04
400	0.06	0.06	0.08	0.09	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
600	0.08	0.09	0.11	0.14	0.18	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02
800	0.10	0.12	0.15	0.20	0.22	0.24	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02
1 000	0.12	0.14	0.18	0.23	0.26	0.28	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02
1 200	0.14	0.17	0.22	0.27	0.30	0.33	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03
1 400	0.16	0.19	0.25	0.30	0.35	0.36	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03
1 600	0.17	0.20	0.27	0.33	0.39	0.40	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03
1 800	0.18	0.23	0.30	0.36	0.42	0.44	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03
2 000	0.20	0.25	0.32	0.39	0.44	0.48	0.00	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.04
2 200	0.21	0.27	0.35	0.43	0.47	0.51	0.00	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04
2 400	0.22	0.30	0.37	0.46	0.50	0.54	0.00	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04
2 600	0.24	0.32	0.39	0.48	0.53	0.57	0.00	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04
2 800	0.26	0.33	0.41	0.50	0.56	0.60	0.00	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04
3 000	0.28	0.34	0.43	0.52	0.58	0.62	0.00	0.01	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.05
3 200	0.28	0.35	0.45	0.54	0.61	0.64	0.00	0.01	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05
3 400	0.29	0.36	0.46	0.56	0.62	0.66	0.00	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05
3 600	0.30	0.37	0.47	0.58	0.64	0.68	0.00	0.02	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.05
3 800	0.31	0.38	0.48	0.60	0.66	0.70	0.00	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.05
4 000	0.32	0.39	0.49	0.61	0.67	0.72	0.00	0.02	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.06
4 500	0.33	0.40	0.50	0.62	0.67	0.73	0.00	0.02	0.03	0.04	0.04	0.04	0.05	0.05	0.06	0.06
5 000	0.34	0.41	0.50	0.62	0.66	0.73	0.00	0.02	0.03	0.04	0.04	0.04	0.05	0.05	0.06	0.06

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[1] Preferred pulley diameters.

Table 10 Power Ratings in Kilowatts (P_r) for A-Section V-Belts, 13 mm Wide with 180° Arc of Contact on Smaller Pulley

(*Clauses* 8.1, A-1.1, A-3.1 *and* A-8.1)

Speed of Faster Shaft	Power Rating for Smaller Pulley Pitch Diameter of									Additional Power Increment per Belt for Speed Ratio of									
	75 mm	80 mm	85 mm	90 mm$^{1)}$	100 mm$^{1)}$	106 mm$^{1)}$	112 mm$^{1)}$	118 mm$^{1)}$	125 mm$^{1)}$	1.00 to 1.01	1.02 to1.04	105 to 1.08	1.09 to 1.12	1.13 to 1.18	1.19 to 1.24	1.25 to 1.34	1.35 to 1.51	1.52 to 1.99	2.00 and over
r/min	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
720	0.53	0.60	0.68	0.75	0.90	0.99	1.07	1.16	1.26	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
960	0.66	0.76	0.86	0.95	1.14	1.25	1.37	1.49	1.61	0.00	0.01	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.12
1 440	0.91	1.04	1.17	1.31	1.58	1.73	1.90	2.07	2.24	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.17
2 880	1.42	1.67	1.91	2.14	2.59	2.76	3.11	3.36	3.63	0.00	0.04	0.08	0.12	0.16	0.20	0.23	0.27	0.31	0.35
100	0.11	0.13	0.12	0.14	0.17	0.18	0.20	0.21	0.23	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
200	0.19	0.22	0.24	0.26	0.31	0.33	0.36	0.39	0.42	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03
300	0.26	0.29	0.33	0.37	0.43	0.46	0.51	0.55	0.60	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.04
400	0.33	0.37	0.42	0.46	0.55	0.60	0.66	0.71	0.77	0.00	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05
500	0.39	0.45	0.51	0.56	0.67	0.72	0.79	0.86	0.93	0.00	0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.05	0.06
600	0.46	0.52	0.59	0.65	0.78	0.85	0.93	1.00	1.08	0.00	0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.07
700	0.52	0.59	0.66	0.74	0.88	0.96	1.05	1.14	1.23	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
800	0.57	0.66	0.74	0.82	0.98	1.08	1.18	1.27	1.38	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.10
900	0.63	0.72	0.81	0.90	1.08	1.18	1.30	1.41	1.52	0.00	0.01	0.02	0.04	0.05	0.06	0.07	0.08	0.10	0.11
1 000	0.68	0.78	0.88	0.98	1.18	1.29	1.42	1.54	1.66	0.00	0.01	0.03	0.04	0.05	0.07	0.08	0.09	0.11	0.12
1 100	0.73	0.84	0.95	1.06	1.28	1.40	1.53	1.66	1.80	0.00	0.02	0.03	0.04	0.06	0.07	0.09	0.10	0.12	0.13
1 200	0.78	0.90	1.02	1.13	1.37	1.50	1.64	1.78	1.93	0.00	0.02	0.03	0.05	0.07	0.08	0.10	0.11	0.13	0.15
1 300	0.83	0.95	1.10	1.21	1.45	1.60	1.75	1.90	2.06	0.00	0.02	0.04	0.05	0.07	0.09	0.11	0.12	0.14	0.16
1 400	0.88	1.01	1.15	1.28	1.54	1.69	1.86	2.02	2.19	0.00	0.02	0.04	0.06	0.08	0.09	0.11	0.13	0.15	0.17
1 500	0.92	1.07	1.21	1.35	1.63	1.79	1.96	2.13	2.31	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18
1 600	0.97	1.12	1.27	1.42	1.72	1.89	2.06	2.24	2.43	0.00	0.02	0.04	0.06	0.09	0.11	0.13	0.15	0.17	0.19
1 700	1.01	1.17	1.33	1.48	1.79	1.97	2.16	2.35	2.54	0.00	0.02	0.05	0.07	0.09	0.11	0.14	0.16	0.18	0.21
1 800	1.05	1.22	1.39	1.55	1.88	2.07	2.26	2.46	2.66	0.00	0.02	0.05	0.07	0.10	0.12	0.15	0.17	0.19	0.22
1 900	1.09	1.27	1.44	1.61	1.95	2.14	2.35	2.56	2.77	0.00	0.03	0.05	0.08	0.10	0.13	0.15	0.18	0.20	0.23
2 000	1.13	1.31	1.50	1.68	2.03	2.23	2.44	2.65	2.87	0.00	0.03	0.05	0.08	0.11	0.13	0.16	0.19	0.22	0.24
2 100	1.17	1.36	1.55	1.74	2.10	2.31	2.53	2.75	2.98	0.00	0.03	0.06	0.09	0.11	0.14	0.17	0.20	0.23	0.25
2 200	1.21	1.40	1.60	1.79	2.17	2.38	2.61	2.84	3.07	0.00	0.03	0.06	0.09	0.12	0.15	0.18	0.21	0.24	0.27
2 300	1.24	1.45	1.65	1.85	2.24	2.46	2.69	2.93	3.16	0.00	0.03	0.06	0.09	0.12	0.16	0.18	0.22	0.25	0.28
2 400	1.28	1.48	1.70	1.90	2.31	2.54	2.78	3.02	3.26	0.00	0.03	0.07	0.10	0.13	0.16	0.19	0.23	0.26	0.29
2 500	1.31	1.53	1.75	1.95	2.37	2.61	2.85	3.09	3.34	0.00	0.03	0.07	0.10	0.14	0.17	0.20	0.24	0.27	0.30

Table 10 (*Concluded*)

Speed of Faster Shaft	Power Rating for Smaller Pulley Pitch Diameter of									Additional Power Increment per Belt for Speed Ratio of									
	75 mm	80 mm	85 mm	90 mm 1)	100 mm 1)	106 mm 1)	112 mm 1)	118 mm 1)	125 mm 1)	1.00 to 1.01	1.02 to1.04	105 to 1.08	1.09 to 1.12	1.13 to 1.18	1.19 to 1.24	1.25 to 1.34	1.35 to 1.5	1.52 to 1.99	2.00 and over
r/min	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
2 600	1.34	1.57	1.80	2.01	2.43	2.67	2.92	3.17	3.42	0.00	0.04	0.07	0.11	0.14	0.17	0.21	0.24	0.28	0.31
2 700	1.37	1.60	1.84	2.06	2.49	2.74	2.99	3.25	3.51	0.00	0.04	0.07	0.11	0.15	0.18	0.22	0.25	0.29	0.33
2 800	1.40	1.64	1.88	2.10	2.55	2.80	3.06	3.31	3.57	0.00	0.04	0.08	0.11	0.15	0.19	0.23	0.26	0.30	0.34
2 900	1.43	1.67	1.91	2.15	2.60	2.86	3.12	3.38	3.65	0.00	0.04	0.08	0.12	0.16	0.19	0.23	0.27	0.30	0.35
3 000	1.46	1.71	1.95	2.19	2.66	2.92	3.18	3.45	3.72	0.00	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36
3 100	1.48	1.74	1.98	2.23	2.71	2.98	3.24	3.50	3.77	0.00	0.04	0.08	0.13	0.17	0.21	0.25	0.29	0.33	0.37
3 200	1.51	1.77	2.02	2.28	2.75	3.03	3.29	3.56	3.83	0.00	0.04	0.09	0.13	0.17	0.22	0.26	0.30	0.34	0.39
3 300	1.53	1.80	2.06	2.31	2.80	3.07	3.34	3.61	3.88	0.00	0.04	0.09	0.13	0.18	0.22	0.27	0.31	0.36	0.40
3 400	1.55	1.82	2.10	2.34	2.83	3.11	3.30	3.65	3.92	0.00	0.05	0.09	0.14	0.18	0.23	0.27	0.32	0.37	0.41
3 500	1.57	1.85	2.12	2.38	2.87	3.10	3.43	3.70	3.97	0.00	0.05	0.09	0.14	0.19	0.24	0.28	0.33	0.38	0.42
3 600	1.59	1.87	2.14	2.41	2.91	3.19	3.47	3.73	4.00	0.00	0.05	0.10	0.15	0.19	0.24	0.29	0.34	0.39	0.44
3 700	1.61	1.89	2.17	2.44	2.95	3.22	3.50	3.77	4.04	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45
3 800	1.62	1.92	2.19	2.46	2.98	3.25	3.53	3.80	4.06	0.00	0.05	0.10	0.15	0.20	0.26	0.31	0.36	0.41	0.46
3 900	1.64	1.93	2.22	2.49	2.99	3.28	3.56	3.82	4.08	0.00	0.05	0.11	0.16	0.21	0.26	0.31	0.37	0.42	0.47
4 000	1.65	1.95	2.24	2.51	3.03	3.30	3.58	3.84	4.10	0.00	0.05	0.11	0.16	0.22	0.27	0.32	0.38	0.43	0.48
4 100	1.67	1.96	2.25	2.53	3.05	3.32	3.60	3.85	4.10	0.00	0.06	0.11	0.17	0.22	0.28	0.33	0.39	0.44	0.50
4 200	1.68	1.98	2.27	2.55	3.07	3.35	3.61	3.85	4.10	0.00	0.06	0.11	0.17	0.23	0.28	0.34	0.40	0.45	0.51
4 300	1.69	1.99	2.28	2.57	3.08	3.35	3.62	3.85	4.10	0.00	0.06	0.12	0.17	0.23	0.29	0.35	0.40	0.46	0.52
4 400	1.69	2.00	2.30	2.57	3.09	3.35	3.63	3.85	4.10	0.00	0.06	0.12	0.18	0.24	0.30	0.35	0.41	0.47	0.53
4 500	1.70	2.01	2.31	2.59	3.10	3.35	3.63	3.85	4.07	0.00	0.06	0.12	0.18	0.24	0.30	0.36	0.42	0.48	0.54
4 600	1.71	2.01	2.31	2.60	3.10	3.34	3.63	3.84	4.06	0.00	0.06	0.12	0.19	0.25	0.31	0.37	0.43	0.49	0.56
4 700	1.71	2.02	2.32	2.60	3.10	3.34	3.62	3.82		0.00	0.06	0.13	0.19	0.25	0.32	0.38	0.44	0.51	0.57
4 800	1.71	2.02	2.32	2.60	3.10	3.33	3.60	3.81		0.00	0.06	0.13	0.19	0.26	0.32	0.39	0.45	0.52	0.58
4 900	1.71	2.02	2.32	2.60	3.10	3.32	3.58	3.79		0.00	0.07	0.13	0.20	0.26	0.33	0.39	0.46	0.53	0.59
5 000	1.71	2.02	2.32	2.60	3.09	3.32	3.56	3.77		0.00	0.07	0.14	0.20	0.27	0.34	0.40	0.47	0.54	0.60

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1) Preferred pulley diameters.

Table 11 Power Ratings in Kilowatts (P_r) for B-Section V-Belts, 17 mm Wide with 180° Arc of Contact on Smaller Pulley

(*Clauses* 8.1, A-1.1, A-3.1 *and* A-8.1)

Speed of Faster Shaft	Power Rating for Smaller Pulley Pitch Diameter of									Additional Power Increment per Belt, for Speed Ratio of									
	125 mm	132 mm	140 mm$^{1)}$	150 mm$^{1)}$	160 mm$^{1)}$	170 mm$^{1)}$	180 mm$^{1)}$	190 mm$^{1)}$	200 mm$^{1)}$	1.00 to 1.01	1.02 to 1.04	1.05 to 1.08	1.09 to 1.12	1.13 to 1.18	1.19 to 1.24	1.25 to 1.34	1.35 to 1.51	1.52 to 1.99	2.00 and over
r/min	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
720	1.61	1.79	1.99	2.24	2.48	2.73	2.97	3.21	3.45	0.00	0.03	0.05	0.08	0.10	0.13	0.15	0.18	0.20	0.23
960	2.02	2.24	2.50	2.82	3.13	3.44	3.75	4.05	4.35	0.00	0.03	0.07	0.10	0.14	0.17	0.20	0.24	0.27	0.30
1 440	2.72	3.03	3.39	3.83	4.26	4.68	5.09	5.50	5.90	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.36	0.41	0.46
2 880	3.96	4.44	4.95	5.55	6.11	6.62	7.08	7.48		0.00	0.10	0.20	0.30	0.41	0.50	0.61	0.71	0.81	0.91
100	0.32	0.35	0.38	0.43	0.47	0.51	0.55	0.59	0.63	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03
200	0.57	0.63	0.69	0.77	0.85	0.92	1.00	1.08	1.15	0.00	0.01	0.01	0.02	0.03	0.04	0.04	0.05	0.06	0.06
300	0.80	0.88	0.97	1.08	1.19	1.31	1.42	1.53	1.64	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
400	1.01	1.11	1.23	1.38	1.52	1.67	1.81	1.96	2.10	0.00	0.01	0.03	0.04	0.06	0.07	0.08	0.10	0.11	0.13
500	1.21	1.33	1.48	1.66	1.84	2.01	2.19	2.36	2.54	0.00	0.02	0.04	0.05	0.07	0.09	0.11	0.12	0.14	0.16
600	1.40	1.55	1.72	1.93	2.14	2.35	2.55	2.76	2.96	0.00	0.02	0.04	0.06	0.08	0.11	0.13	0.15	0.17	0.19
700	1.58	1.75	1.94	2.19	2.43	2.66	2.90	3.13	3.37	0.00	0.02	0.05	0.07	0.10	0.12	0.15	0.17	0.20	0.22
800	1.75	1.94	2.16	2.44	2.70	2.97	3.24	3.50	3.78	0.00	0.03	0.06	0.08	0.11	0.14	0.17	0.20	0.23	0.25
900	1.92	2.13	2.37	2.68	2.97	3.27	3.56	3.85	4.13	0.00	0.03	0.06	0.10	0.13	0.16	0.19	0.22	0.25	0.29
1 000	2.08	2.31	2.58	2.91	3.23	3.55	3.87	4.18	4.49	0.00	0.04	0.07	0.10	0.14	0.18	0.21	0.25	0.28	0.32
1 100	2.23	2.49	2.78	3.13	3.48	3.83	4.17	4.51	4.84	0.00	0.04	0.08	0.12	0.16	0.19	0.23	0.27	0.31	0.35
1 200	2.38	2.66	2.96	3.35	3.72	4.09	4.46	4.81	5.17	0.00	0.04	0.08	0.13	0.17	0.21	0.25	0.30	0.34	0.38
1 300	2.53	2.82	3.15	3.55	3.95	4.34	4.73	5.11	5.48	0.00	0.05	0.09	0.14	0.18	0.23	0.27	0.32	0.37	0.41
1 400	2.66	2.97	3.32	3.75	4.17	4.59	4.98	5.39	5.78	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.39	0.44
1 500	2.79	3.12	3.49	3.94	4.38	4.82	5.24	5.66	6.06	0.00	0.05	0.10	0.16	0.21	0.26	0.32	0.37	0.42	0.48
1 600	2.92	3.26	3.65	4.12	4.58	5.04	5.48	5.91	6.33	0.00	0.06	0.11	0.17	0.23	0.28	0.34	0.39	0.45	0.51
1 700	3.04	3.40	3.80	4.29	4.77	5.24	5.70	6.14	6.58	0.00	0.06	0.12	0.18	0.24	0.30	0.36	0.42	0.48	0.54
1 800	3.15	3.52	3.94	4.45	4.95	5.44	5.90	6.36	6.80	0.00	0.06	0.13	0.19	0.25	0.32	0.38	0.44	0.51	0.57
1 900	3.26	3.65	4.08	4.61	5.12	5.62	6.10	6.56	7.00	0.00	0.07	0.13	0.20	0.27	0.33	0.40	0.47	0.54	0.60
2 000	3.36	3.76	4.21	4.75	5.28	5.78	6.27	6.74	7.19	0.00	0.07	0.14	0.21	0.28	0.35	0.42	0.49	0.56	0.63
2 100	3.45	3.87	4.33	4.88	5.42	5.94	6.43	6.91	7.36	0.00	0.07	0.15	0.22	0.30	0.37	0.44	0.52	0.59	0.67
2 200	3.54	4.00	4.44	5.01	5.55	6.07	6.58	7.05	7.50	0.00	0.08	0.16	0.23	0.31	0.39	0.46	0.54	0.62	0.70
2 300	3.62	4.06	4.54	5.12	5.68	6.20	6.70	7.18	7.62	0.00	0.08	0.16	0.24	0.32	0.41	0.49	0.57	0.65	0.73

Table 11 (*Concluded*)

Speed of Faster Shaft	Power Rating for Smaller Pulley Pitch Diameter of									Additional Power Increment per Belt, for Speed Ratio of									
	125 mm	132 mm	140 mm[1]	150 mm[1]	160 mm[1]	170 mm[1]	180 mm[1]	190 mm[1]	200 mm[1]	1.00 to 1.01	1.02 to 1.04	1.05 to 1.08	1.09 to 1.12	1.13 to 1.18	1.19 to 1.24	1.25 to 1.34	1.35 to 1.51	1.52 to 1.99	2.00 and over
r/min	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
2 400	3.70	4.14	4.63	5.22	5.78	6.31	6.81	7.28	7.72	0.00	0.08	0.17	0.25	0.34	0.42	0.51	0.59	0.68	0.76
2 500	3.77	4.22	4.64	5.23	5.80	6.33	6.83	7.29	7.79	0.00	0.09	0.18	0.26	0.35	0.44	0.53	0.62	0.70	0.79
2 600	3.82	4.28	4.79	5.39	5.95	6.48	6.97	7.42	7.83	0.00	0.09	0.18	0.27	0.37	0.46	0.55	0.64	0.73	0.82
2 700	3.88	4.35	4.86	5.46	6.03	6.55	7.03	7.47	7.86	0.00	0.10	0.19	0.29	0.38	0.48	0.57	0.67	0.76	0.86
2 800	3.93	4.40	4.91	5.52	6.08	6.60	7.06	7.48	7.85	0.00	0.10	0.20	0.29	0.39	0.49	0.59	0.69	0.79	0.89
2 900	3.97	4.44	4.96	5.56	6.12	6.62	7.08	7.48		0.00	0.10	0.20	0.31	0.41	0.51	0.61	0.72	0.82	0.92
3 000	4.00	4.48	4.99	5.59	6.14	6.63	7.07	7.44		0.00	0.11	0.21	0.32	0.42	0.53	0.63	0.74	0.85	0.95
3 100	4.02	4.50	5.02	5.61	6.15	6.63	7.04			0.00	0.11	0.22	0.33	0.44	0.55	0.65	0.76	0.87	0.98
3 200	4.04	4.52	5.03	5.62	6.14	6.60	6.99			0.00	0.11	0.23	0.34	0.45	0.56	0.68	0.79	0.90	1.01
3 300	4.05	4.52	5.03	5.61	6.11	6.55				0.00	0.12	0.23	0.35	0.47	0.58	0.70	0.81	0.93	1.05
3 400	4.05	4.52	5.02	5.58	6.07	6.48				0.00	0.12	0.24	0.36	0.48	0.60	0.72	0.84	0.96	1.08
3 500	4.04	4.50	5.00	5.55	6.01					0.00	0.12	0.25	0..37	0.49	0.62	0.74	0.86	0.99	1.11
3 600	4.02	4.48	4.96	5.49						0.00	0.13	0.25	0.38	0.51	0.63	0.76	0.89	1.01	1.14
3 700	3.99	4.45	4.92	5.43						0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17
3 800	3.95	4.40	4.86	5.34						0.00	0.13	0.27	0.40	0.54	0.67	0.80	0.94	1.07	1.20
3 900	3.91	4.34	4.76							0.00	0.14	0.28	0.41	0.55	0.69	0.82	0.96	1.10	1.24
4 000	3.85	4.28	4.70							0.00	0.14	0.28	0.42	0.56	0.70	0.84	0.99	1.13	1.27
4 100	3.78	4.20								0.00	0.14	0.29	0.43	0.58	0.72	0.87	1.01	1.16	1.30
4 200	3.71	4.11								0.00	0.15	0.30	0.44	0.59	0.74	0.89	1.04	1.18	1.33
4 300	3.62	4.00								0.00	0.15	0.30	0.45	0.61	0.76	0.91	1.06	1.21	1.36
4 400	3.53									0.00	0.15	0.31	0.46	0.62	0.78	0.93	1.08	1.24	1.39
4 500	3.42									0.00	0.16	0.32	0.48	0.63	0.79	0.95	1.11	1.27	1.43

[1] Preferred pulley diameters.

Table 12 Power Ratings in Kilowatts (P_r) for C-Section V-Belts 22 mm Wide with 180° Arc of Contact on Smaller Pulley
(*Clauses* 8.1, A-1.1, A-3.1 *and* A-8.1)

Speed of Faster Shaft	Power Rating for Smaller Pulley Pitch Diameter of										Additional Power Increment per Belt, for Speed Ratio of									
	200 mm[1]	212 mm[1]	224 mm[1]	236 mm[1]	250 mm[1]	265 mm[1]	280 mm[1]	315 mm[1]	355 mm[1]	400 mm[1]	1.00 to 1.01	1.02 to 1.04	1.05 to 1.08	1.09 to 1.12	1.13 to 1.18	1.19 to 1.24	1.25 to 1.34	1.35 to 1.51	1.52 to 1.99	2.00 and over
r/min	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
720	4.65	5.18	5.70	6.22	6.81	7.44	8.06	9.49	11.05	12.75	0.00	0.07	0.14	0.21	0.28	0.35	0.42	0.49	0.56	0.63
960	5.76	6.42	7.08	7.72	8.46	9.24	10.00	11.72	13.58	15.51	0.00	0.09	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85
1 440	7.49	8.36	9.21	10.03	10.95	11.91	12.82	14.76	16.67		0.00	0.14	0.28	0.42	0.56	0.71	0.85	0.99	1.13	1.27
100	0.93	1.02	1.11	1.20	1.30	1.42	1.53	1.78	2.07	2.39	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
200	1.66	1.83	2.00	2.16	2.36	2.57	2.77	3.25	3.79	4.39	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18
300	2.32	2.56	2.80	3.05	3.33	3.62	3.92	4.61	5.38	6.23	0.00	0.03	0.06	0.09	0.12	0.15	0.18	0.21	0.24	0.26
400	2.93	3.24	3.56	3.87	4.23	4.62	5.00	5.88	6.87	7.96	0.00	0.04	0.08	0.12	0.16	0.20	0.23	0.27	0.31	0.35
500	3.50	3.89	4.27	4.65	5.09	5.55	6.02	7.08	8.27	9.58	0.00	0.05	0.10	0.15	0.20	0.24	0.29	0.34	0.39	0.44
600	4.04	4.49	4.94	5.38	5.90	6.44	6.98	8.21	9.59	11.09	0.00	0.06	0.12	0.18	0.24	0.29	0.35	0.41	0.47	0.53
700	4.56	5.07	5.58	6.08	6.66	7.28	7.89	9.28	10.82	12.48	0.00	0.07	0.14	0.21	0.27	0.34	0.41	0.48	0.55	0.62
800	5.04	5.61	6.18	6.74	7.39	8.07	8.75	10.28	11.96	13.75	0.00	0.08	0.16	0.23	0.31	0.39	0.47	0.55	0.63	0.71
900	5.50	6.13	6.75	7.36	8.07	8.82	9.55	11.20	13.00	14.90	0.00	0.09	0.18	0.26	0.35	0.44	0.53	0.62	0.71	0.79
1 000	5.93	6.61	7.29	7.95	8.71	9.51	10.29	12.05	13.94	15.90	00.0	0.10	0.20	0.29	0.39	0.49	0.59	0.69	0.78	0.88
1 100	6.33	7.06	7.79	8.49	9.30	10.15	10.98	12.82	14.77	16.75	0.00	0.11	0.22	0.32	0.43	0.54	0.65	0.75	0.86	0.97
1 200	6.71	7.49	8.25	9.00	9.85	10.74	11.60	13.50	15.48	17.43	0.00	0.12	0.24	0.35	0.47	0.59	0.70	0.82	0.94	1.06
1 300	7.05	7.87	8.67	9.46	10.34	11.27	12.15	14.09	16.07	17.95	0.00	0.13	0.26	0.38	0.51	0.64	0.76	0.89	1.02	1.15
1 400	7.37	8.23	9.06	9.87	10.79	11.74	12.64	14.59	16.52	18.27	0.00	0.14	0.27	0.41	0.55	0.69	0.82	0.96	1.10	1.23
1 500	7.66	8.55	9.41	10.24	11.18	12.14	13.05	14.99	16.84		0.00	0.15	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32
1 600	7.91	8.83	9.71	10.56	11.52	12.48	13.39	15.28	17.00		0.00	0.16	0.31	0.47	0.63	0.78	0.94	1.10	1.25	1.41
1 700	8.14	9.07	9.97	10.83	11.79	12.75	13.65	15.46			0.00	0.17	0.33	0.50	0.67	0.83	1.00	1.17	1.33	1.50
1 800	8.32	9.28	10.19	11.05	12.00	12.95	13.82	15.52			0.00	0.18	0.35	0.53	0.71	0.88	1.06	1.23	1.41	1.59
1 900	8.48	9.44	10.35	11.22	12.15	13.07	13.90				0.00	0.19	0.37	0.56	0.75	0.93	1.12	1.30	1.49	1.67
2 000	8.59	9.56	10.47	11.32	12.24	13.12	13.89				0.00	0.20	0.39	0.59	0.78	0.98	1.17	1.37	1.57	1.76
2 100	8.67	9.64	10.54	11.37	12.25	13.08					0.00	0.21	0.41	0.62	0.82	1.03	1.23	1.44	1.65	1.85
2 200	8.71	9.67	10.55	11.35	12.19						0.00	0.22	0.43	0.65	0.86	1.08	1.29	1.51	1.72	1.94
2 300	8.71	9.65	10.50	11.27							0.00	0.23	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03
2 400	8.67	9.58	10.40	11.12							0.00	0.23	0.47	0.70	0.94	1.18	1.41	1.65	1.88	2.12
2 500	8.58	9.47	10.24								0.00	0.24	0.49	0.74	0.98	1.22	1.47	1.71	1.96	2.20
2 600	8.45	9.30									0.00	0.25	0.51	0.76	1.02	1.27	1.53	1.78	2.04	2.29
2 700	8.28	9.07									0.00	0.26	0.53	0.79	1.06	1.32	1.59	1.85	2.12	2.38
2 800	8.05										0.00	0.27	0.55	0.82	1.10	1.37	1.64	1.92	2.19	2.47

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[1] Preferred pulley diameters.

Table 13 Power Ratings in Kilowatts (P_r) for D-Section V-Belts, 32 mm Wide with 180° Arc of Contact on Smaller Pulley

(*Clauses* 8.1, A-1.1, A-3.1 *and* A-8.1)

Speed of Faster Shaft	Power Rating for Smaller Pulley Pitch Diameter of										Additional Power Increment per Belt, for Speed Ratio of									
	355 mm[1]	375 mm[1]	400 mm[1]	425 mm[1]	450 mm[1]	475 mm[1]	500 mm[1]	530 mm	560 mm[1]	600 mm[1]	1.00 to 1.01	1.02 to 1.04	1.05 to 1.08	1.09 to 1.12	1.13 to 1.18	1.19 to 1.24	1.25 to 1.34	1.35 to 1.51	1.52 to 1.99	2.00 and over
r/min	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
720	16.26	17.90	19.90	21.85	23.75	23.59	27.38	29.44	31.42	33.91	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25
960	19.26	21.16	23.45	25.63	27.70	29.65	31.47	33.50	35.32		0.00	0.33	0.67	1.00	1.34	1.67	2.00	2.33	2.67	3.00
1 440	21.22	23.03									0.00	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
100	3.39	3.70	4.08	4.45	4.83	5.20	5.57	6.02	6.46	7.04	0.00	0.03	0.07	0.10	0.14	0.17	0.21	0.24	0.28	0.31
200	6.04	6.61	7.32	8.02	8.72	9.42	10.11	10.93	11.75	12.83	0.00	0.07	0.14	0.21	0.28	0.35	0.42	0.49	0.56	0.63
300	8.41	9.22	10.24	11.24	12.24	13.22	14.20	15.37	16.52	18.04	0.00	0.10	0.21	0.31	0.42	0.52	0.62	0.73	0.83	0.94
400	10.57	11.61	12.91	14.19	15.45	16.70	17.94	19.40	20.85	22.74	0.00	0.14	0.28	0.42	0.56	0.70	0.83	0.97	1.11	1.25
500	12.55	13.80	15.35	16.87	18.38	19.86	21.32	23.03	24.72	26.91	0.00	0.17	0.35	0.52	0.70	0.87	1.04	1.22	1.39	1.56
600	14.34	15.79	17.56	19.30	21.01	22.68	24.32	26.23	28.09	30.49	0.00	0.21	0.42	0.62	0.83	1.04	1.25	1.46	1.67	1.88
700	15.96	17.57	19.54	21.46	23.33	25.15	26.91	28.96	30.92	33.41	0.00	0.24	0.49	0.73	0.97	1.22	1.46	1.70	1.95	2.19
800	17.39	19.14	21.26	23.32	25.31	27.22	29.06	31.17	33.16	35.62	0.00	0.28	0.56	0.83	1.11	1.39	1.67	1.95	2.22	2.50
900	18.62	20.48	22.72	24.87	26.92	28.87	30.73	32.81	34.73	37.02	0.00	0.31	0.63	0.94	1.25	1.56	1.87	2.19	2.50	2.81
1 000	19.64	21.57	23.88	26.07	28.14	30.07	31.86	33.82	35.57		0.00	0.35	0.70	1.04	1.39	1.74	2.08	2.43	2.78	3.13
1 100	20.43	22.40	24.74	26.91	28.92	30.76	32.42				0.00	0.38	0.77	1.15	1.53	1.91	2.29	2.63	3.06	3.44
1 200	20.98	22.96	25.26	27.36	29.25	30.92					0.00	0.42	0.84	1.25	1.67	2.09	2.50	2.92	3.34	3.75
1 300	21.27	23.21	25.42	27.38							0.00	0.45	0.91	1.35	1.81	2.26	2.71	3.16	3.61	4.06
1 400	21.29	23.15	25.21								0.00	0.49	0.98	1.46	1.95	2.43	2.92	3.40	3.89	4.38
1 500	21.03	22.76									0.00	0.52	1.05	1.56	2.09	2.61	3.12	3.65	4.17	4.69
1 600	20.46										0.00	0.56	1.11	1.67	2.23	2.78	3.33	3.89	4.45	5.00

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[1] Preferred pulley diameters.

Table 14 Power Rating in Kilowatts (P_r) for E-Section V-Belts 32 mm Wide with 180° Arc of Contact on Smaller Pulley

(*Clauses* 8.1, A-1.1, A-3.1 *and* A-8.1)

Speed of Faster Shaft	Power Rating for Smaller Pulley Pitch Diameter of										Additional Power Increment per Belt, for Speed Ratio of									
	500 mm[1]	530 mm	560 mm[1]	600 mm[1]	630 mm	650 mm	710 mm	750 mm	800 mm	900 mm[1]	1.00 to 1.01	1.02 to 1.04	1.05 to 1.06	1.09 to 1.12	1.13 to 1.18	1.19 to 1.24	1.25 to 1.34	1.35 to 1.51	1.52 to 1.99	2.00 and over
r/min	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
585	26.6	28.2	32.1	35.6	37.7	40.1	43.7	47.4	50.8	56.0	0.00	0.44	0.89	1.33	1.77	2.21	3.07	3.11	3.54	3.98
720	30.8	32.0	35.3	39.0	41.1	44.2	47.2	50.1			0.00	0.55	1.09	1.64	2.19	2.73	3.28	3.85	4.37	4.92
960	31.1	33.5	36.5								0.00	0.73	1.46	2.18	2.91	3.64	4.37	5.08	5.82	6.54
50	3.83	4.13	4.92	5.03	5.33	5.77	6.20	6.80	7.38	8.45	0.00	0.04	0.08	0.08	0.14	0.19	0.23	0.26	0.31	0.34
100	6.85	7.41	8.19	9.11	9.68	10.49	11.3	12.4	13.4	15.3	0.00	0.08	0.14	0.23	0.31	0.37	0.45	0.53	0.61	0.68
150	9.59	10.4	11.4	12.7	13.6	14.7	15.9	17.6	19.1	21.8	0.00	0.11	0.23	0.34	0.45	0.56	0.68	0.79	0.91	1.02
200	12.1	13.1	14.6	16.3	17.3	18.0	20.4	22.3	24.3	27.7	0.00	0.14	0.31	0.45	0.61	0.76	0.91	1.06	1.20	1.36
250	14.4	13.7	17.5	19.5	20.8	22.6	24.3	26.7	29.1	32.9	0.00	0.19	0.37	0.56	0.76	0.95	1.14	1.33	1.52	1.70
300	16.6	18.2	20.1	22.4	24.0	26.1	28.2	30.9	33.7	38.2	0.00	0.23	0.45	0.68	0.91	1.14	1.36	1.59	1.83	2.05
350	18.7	20.5	22.8	25.3	27.0	29.4	31.7	34.8	37.7	42.8	0.00	0.26	0.53	0.79	1.06	1.33	1.59	1.86	2.12	2.43
400	20.7	22.4	25.1	27.9	29.7	31.5	34.9	38.2	41.4	46.6	0.00	0.31	0.61	0.91	1.21	1.52	1.83	2.12	2.43	2.73
450	22.4	24.4	27.3	30.4	32.2	35.0	37.7	41.3	44.7	50.2	0.00	0.34	0.68	1.02	1.36	1.71	2.05	2.39	2.73	3.07
500	24.0	26.3	29.2	32.6	34.5	37.5	40.4	44.0	47.4	50.5	0.00	0.37	0.76	1.13	1.52	1.89	2.28	2.65	3.03	3.41
550	25.6	27.9	31.0	34.4	36.6	39.6	42.5	45.2	49.6	55.0	0.00	0.42	0.84	1.24	1.66	2.08	2.50	2.91	3.33	3.75
600	27.0	29.3	32.6	36.2	38.3	41.5	44.3	48.0	51.4	56.4	0.00	0.45	0.91	1.38	1.83	2.28	2.73	3.18	3.63	4.09
650	28.1	30.5	33.9	37.5	39.7	42.8	45.8	49.3	52.5		0.00	0.50	0.98	1.47	1.97	2.45	2.95	3.44	3.94	4.43
700	29.0	31.6	35.0	38.7	40.8	43.9	46.8	50.2	53.0		0.00	0.53	1.06	1.60	2.12	2.65	3.18	3.70	4.25	4.77
750	29.8	32.5	35.9	39.5	41.7	44.7	47.3	50.4			0.00	0.56	1.14	1.70	2.28	2.84	3.41	3.98	4.54	5.11
800	30.5	33.1	36.4	40.0	42.1	44.9	47.3				0.00	0.61	1.21	1.83	2.43	3.04	3.63	4.25	4.85	5.46
850	30.8	33.4	36.7	40.3	42.1	44.9					0.00	0.65	1.29	1.93	2.57	3.22	3.86	4.50	5.15	5.80
900	31.1	33.7	36.9	40.2	41.8						0.00	0.68	1.36	2.05	2.73	3.41	4.09	4.77	5.46	6.15
950	31.0	33.4	36.6	39.5							0.00	0.73	1.44	2.16	2.88	3.60	4.31	5.04	5.75	6.48
1 000	30.8	33.1	36.0								0.00	0.76	1.52	2.28	3.04	3.80	4.54	5.05	6.06	6.82
1 050	30.4	32.6									0.00	0.79	1.60	2.39	3.18	3.98	4.77	5.57	6.37	7.16
1 100	29.6										0.00	0.84	1.66	2.50	3.33	4.17	4.99	5.83	6.67	7.50

[1] Preferred pulley diameters.

ANNEX B

(*Clause 9*)

SAMPLING OF V-BELTS AND CRITERION FOR CONFORMITY

B-1 SCALE OF SAMPLING

B-1.1 Lot

In any consignment all the V-belts of the same designation (that is, the same cross section and nominal pitch length) manufactured from a single batch of raw materials or from component parts obtained from a single source under essentially similar conditions of manufacture shall be grouped together to constitute a lot.

B-1.2 To ascertain the conformity of a lot to the requirements of this specification, tests shall be carried out for each lot separately. The number of V-belts to be selected randomly for this purpose shall be in accordance with col 1 and col 2 of Table 15.

B-1.3 The V-belts shall be selected at random and to ensure randomness of selection one of the following procedure is recommended for use:

a) If all the V-belts in a lot are packed individually, then starting from any V-belt, count them in one order as 1, 2, ..., etc, up to r and so on, where r is the integral part of N/n (N being the number of V-belts in the lot and n the number of V-belts to be chosen). Every rth V-belt thus counted shall be withdrawn to constitute a sample.

b) If the V-belts are packed in bundles, then a certain number of bundles (not less than 10 percent of the total number of bundles in the lot) shall be chosen first, and from each of the bundles so chosen approximately equal number of V-belts shall be selected so as to obtain the required number of V-belts specified in col 2 of Table 15.

B-2 NUMBER OF TESTS AND CRITERION FOR CONFORMITY

B-2.1 Each of the V-belts selected according to **B-1.3** shall be examined for dimensions (section and length). Any V-belt failing in one or more of the dimensional requirements given in the standard shall be considered as a defective.

B-2.1.1 If the number of defective V-belts (*see* **B-2.1**) found in the sample lot is less than or equal to the permissible number of defectives given in col 3 of Table 15, the lot shall be declared as conforming to the dimensional requirements of V-belts, otherwise not.

Table 15 Scale of Sampling and Permissible Number of Defectives

(*Clauses* B-1.2, B-1.3 *and* B-2.1.1)

Number of V-Belts in the Lot (1)	No. of V-Belts to be Chosen (2)	Permissible Number of Defectives (3)
Up to 1 000	10	0
1 001 to 3 000	15	1
3 001 to 8 000	30	2
8 001 to 22 000	45	2
22 001 to 100 000	60	3
100 001 and above	90	4

ANNEX C

(*Clauses* 10.1 *and* 10.1.1)

METHOD OF TENSILE TEST

C-1 APPARATUS

C-1.1 The accuracy of the tensile testing machine shall be within ± 1 percent.

C-1.2 The range of the machine shall be so chosen, that the loads to be measured fall within 10 percent and 90 percent of the full scale deflection.

C-1.3 The load shall be applied smoothly and the rate of transverse of the driven grip shall be 50 ± 2 mm/min.

C-1.4 The method of holding the test piece shall be such as to ensure proper alignment of the test piece, eliminating slip or damage during testing. The use of transverse serrated grips as illustrated in Fig. 2 is admissible.

C-2 TEST PIECE

C-2.1 Cut three test pieces of about 400 mm in length leaving a clear length of 250 mm between the grips. Use of suitable packing pieces at the top and the bottom of the test piece is permitted to avoid slippage of the test piece from the grips of the tensile testing machine during test. [*see* Fig. 3 (A) for cross section of test piece].

C-2.1.1 For belts of Section C, D and E, the bottom rubber (base rubber) along with cover fabric can be splitted off from the test piece, as agreed between the manufacturer and the purchaser, keeping the tension members intact as shown in Fig. 3(B).

C-3 CONDITIONING

C-3.1 The test pieces shall be taken from belts not less than 2 days from the date of manufacture of the belt. The test pieces shall be conditioned for 24 h at 27 ± 2°C and 65 ± 5 percent relative humidity and tested at the same conditions of temperature and humidity. Conditioning may be increased to a maximum of 14 days when agreed between the manufacturer and the purchaser.

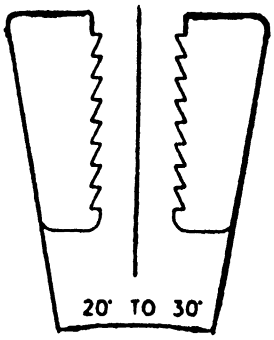
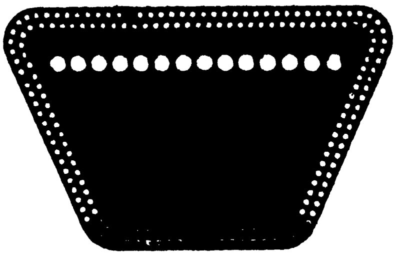


FIG. 2 TRANSVERSE SERRATED GRIPS FOR TENSILE TEST OF V-BELTS



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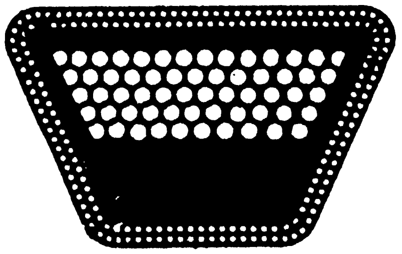

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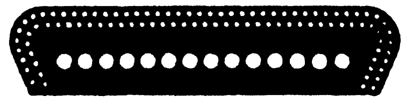
FIG. 3 (A) CROSS SECTION OF TEST PIECE



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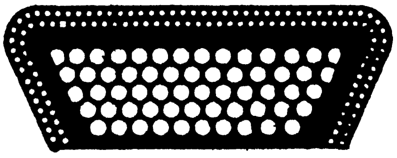

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FIG. 3 (B) CROSS SECTION OF TEST PIECE AFTER SPLITTING THE BOTTOM RUBBER (BASE RUBBER)

C-4 PROCEDURE

C-4.1 The three test pieces as prepared under C-2 shall be subjected to tensile test and the tensile strength and elongation at break shall be recorded.

C-4.2 For measuring the elongation at break a bench mark of 100 mm may be employed.

C-4.3 If the break or rupture of the test piece or slippage of the test piece from the jaws occurs before the tensile load reaches the specified value, the results of such tests shall be discarded, but if the results of such tests are required they shall be reported as jaw break or slippage as the case may be.

ANNEX D

(*Foreword* and *Table* 5, *Note*)

RECOMMENDATION FOR STORAGE OF BELTS

D-1 GENERAL

Unfavourable storage conditions can lead to reduced belt life and to variations in belt length. This Annex therefore, makes recommendations on the more important criteria for good storage.

D-2 STORAGE ENVIRONMENT

Belts should be stored in a cool dry place out of the direct sunlight at ambient temperatures preferably below 30°C. Belts should not be stored on the floor or near windows, radiators or airflow from heaters. Some fibres used in strength members of belts are subject to shrinkage in storage, the amount depending on the temperature, relative humidity and storage time.

D-3 EQUIPMENT

During storage avoid excess weight on and distortion of belts. When hung on pegs, the longer belts should be coiled so that the loops are not greater than approximately 2 500 mm in circumference. Pegs should be crescent shaped and large enough to avoid compression set from corners or from acute bends of the belt.

D-4 DRIVE INSTALLATION

It is recommended that a drive which is to stand for a prolonged period before use should have the belt tension relaxed to prevent the belt taking a permanent set on the pulleys. Before a drive is started up, it is essential that the belt be retensioned.

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Amendments Issued Since Publication

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Printed at New India Printing Press, Khurja, India